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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/276,883	03/26/1999	CHARLES CLAVADETSCHER	80398.P163	2775

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EXAMINER	
JONES, HUGH M	

ART UNIT	PAPER NUMBER
2123	5

DATE MAILED: 10/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
09/276,883	Clavadetscher
Examiner	**Art Unit**
Hugh Jones	2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Jan 24, 2002* .

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-96* is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-96* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Introduction

1. Claims 1-96 of U. S. Application 09/276,883 filed on 26-March-1999, are presented for examination.

Claim Objections

2. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not). Note the claim numbering sequence on page 32, specification (i.e., 18, 19, ***20, 21, 20, 22, 23***...). Misnumbered claims 20 (which is now renumbered as claim 22) to 95 have been renumbered as claims 22-96.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. Applicants have not disclosed a digital (or even non-digital) camera device or model. At most, Applicants have disclosed lenses parameters.

Response to Amendment

4. The amendment filed 1/24/2002 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the amendment to the specification and to figure 6A. Applicant is required to cancel the new matter in the reply to this Office Action or to indicate support in the originally filed specification.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1-96 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The claims refer to some unspecified "camera model"; however there is no support for such a model in the specification. Instead, there appears to be a general description of what the model could possibly be capable of. Furthermore, most of the "model" is directed at lenses models and not camera models. The only recited feature which is remotely related to the camera itself is the "aspect ratio" which is merely a measure of the image size at the focal plane. Furthermore, there is no teaching of a *digital camera, as apparently recited in claims 51-96.*

7. **Claims 1-96 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.** The claims refer to some unspecified "camera model"; however there is no support for such a model in the specification or any indication that Applicants possessed such a model. Instead, there appears to be a general description of what the model could possibly be capable of. Furthermore, most of the "model" is directed at lenses models and not camera models. The only recited feature which is remotely related to the camera itself is the "aspect ratio" which is merely a measure of the image size at the focal plane. Furthermore, there is no teaching of a *digital camera, as apparently recited in claims 51-96.*

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. **Claims 1-50, 65-96 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps.** See MPEP § 2172.01. The omitted steps are: unknown but are related to a camera model.

10. **Claims 51-59 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections.** See MPEP § 2172.01. The omitted structural cooperative relationships are: unknown but are related to a camera model.

Claim Interpretation

11. The claims appear to recite simulation/modeling of lens and further obtaining simulated images from such lens, using well known photographic parameters such as circle of confusion, aspect ratio, depth of field, hyperfocal distance, etc.. Some of the claims, namely the apparatus and medium claims (such as claims 51-96) appear to be directed to a camera with an on-board processor, such as a digital camera, which is loaded with firmware, such as SONY™ Cybershot digital cameras.

12. The claims are difficult to interpret in view of the lack of teaching of the "camera model" and its implementation. Consequently, the Examiner will assume that the camera models, as taught in the art, are that which is implied by the claims. Furthermore, it is assumed that claims 51-96, for example, read on a camera with an on-board processor, such as a digital camera, which is loaded with firmware, such as SONY™ Cybershot digital cameras.

13. It is noted that many claims recite features which do not correspond to the respective preambles. For example, consider claim 1. There are no limitations directed at a model. The claim merely recites ***setting a camera and lens parameter after setting a different camera and lens parameter***. It is unknown how this constitutes a "model". In fact, this claim reads on using a camera in "manual setting", for example, where the film ASA is set, then the aperture is set, and then the shutter speed is set. On course this can be done automatically in a digital camera in "program setting". Consider claim 19 for which the preamble recites "...simulating a digital camera...". There is no teaching in the specification of a digital (oe even analog) camera. In any

case, the limitations are not directed at a digital camera. Consider claim 35, for example, which recite "markers". This reads on the LCD readout in cameras (corresponding to focus, ASA, aperture, etc.). There is nothing recited in the limitations corresponding to a simulation. Consider claim 45, for example. ***The limitations merely read on use of an actual camera.*** Consider claim 43, for example. ***The limitations are merely directed at imaging a calibration chart*** with a lens using, for example, the standard Macbeth chart. There is no simulation or even calibration recited in the claim. Such recitations have not been given patentable weight because the recitation occurs in the preamble. ***A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone.*** See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Furthermore, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

14. The Examiner therfore interprets, as per the preceding discussion, that claims 1-34 are directed to a lens simulation or modeling, claims 35-42 and 51-96 are directed to a real camera

with an on-board processor and a viewfinder, claims 43-47 are directed to calibration of lenses and claims 48-50 are directed to lenses calibration wherein before and after images are determined.

15. It is noted that the specification makes certain admission (specifcally, line 27, page 11 to line 3, page 12) about what is not expressly disclosed in the specification. The Examiner does not agree that a skilled artisan would know how to supply the missing details.

Claim Rejections - 35 USC § 102

16. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

17. A person shall be entitled to a patent unless -

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

18. The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

19. Claims 1-96 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Subbarao or Wheeler et al. ('204).

Subbarao discloses a camera simulation system and further discloses a method of determining the distance between a surface patch of a 3-D spatial scene and a camera system. The distance of the surface patch is determined on the basis of at least a pair of images, each image formed using a camera system with either a finite or infinitesimal change in the value of at least one camera parameter. A first and second image of the 3-D scene are formed using the camera system which is characterized by a first and second set of camera parameters, and a point spread function, respectively, where the first and second set of camera parameters have at least one dissimilar camera parameter value. A first and second subimage is selected from the first and second images so formed, where the subimages correspond to the surface patch of the 3-D scene, the distance from which to the camera system, is to be determined. On the basis of the first and second subimages, a first constraint is derived between the spread parameters of the point spread function which corresponds to the first and second subimages. On the basis of the values of the camera parameters, a second constraint is derived between the spread parameters of the point spread function which corresponds to the first and second subimages. Using the first and second constrainsts, the spread parameters are then determined. On the basis of at least one of the spread parameters and the first and second sets of camera parameters, the distance between the camera system and the surface patch in the 3-D scene is determined. Note fig. 1-7A and corresponding text.

Wheeler et al. disclose an exposure control apparatus, and various accompanying methods, for use in a photographic camera for improving the overall quality of photographed images, i.e. increasing the number of acceptable and higher quality images, that are produced by the camera for user-selected non-standard display sizes and/or different focal length photographing modes over that obtainable by adherence to ISO/ANSI exposure standards. The quality improvement is attained through user selection of a desired display size and/or focal length photographing mode for each image to be captured followed by an optimization, for that size and mode, of various photographic exposure parameters (exposure settings and, where appropriate, flash parameters). The invention violates the ISO/ANSI exposure standards where necessary to improve image quality, for the desired display size and focal length photographing mode, beyond that which would result from adherence to these standards. See fig. 2-14.

20. Claims 1-34 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Potmesil et al.

Potmesil et al. disclose the traditional pin-hole camera projection geometry, used in computer graphics, to a ***more realistic camera model*** *which approximates the effects of a lens and an aperture function of an actual camera. This model allows the generation of synthetic images which have a depth of field, can be focused on an arbitrary plane, and also permits selective modeling of certain optical characteristics of a lens.* The model can be expanded to include motion blur and special effect filters. These capabilities provide additional tools for

highlighting important areas of a scene and for portraying certain physical characteristics of an object in an image. See section 2 (camera model) and section 3 (synthetic image generation).

21. Claims 1-34 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Rioux or Kolb et al. ('606).

Rioux discloses simulating a photographic camera for rendering two-dimensional images of virtual three-dimensional objects enhances flexibility and ease of use of a rendering system. Simulating a photographic camera is performed by determining light from virtual light sources that passes through a lens of the simulated photographic camera having an aperture, focus, and shutter speed and is incident upon the imaging plane within the camera. The method also has application in teaching photography because, in some instances, computer simulation reduces the cost of equipment and consumables. See fig. 2-5 and corresponding text.

Kolb et al. ('606) disclose a physical camera which is modeled to render an image in a computer graphics system. When given the manufacturer's specifications of the physical camera's lenses, including the dimensions and indices of refraction of its lenses, stops, and shutter characteristics, the location of the film surface relative to the lens system, and the orientation of the camera within the scene, the invention accurately and efficiently mimics the physical principles of image formation creating an image which approximates an image produced by the physical camera. The procedure comprises four main elements: (1) the geometric relationships between the lens system, object, and film plane are modeled by precise placement and movement of lens elements, (2) image geometry is computed by using principles of geometric optics, (3) an

exit pupil is calculated in order to define a region for efficiently sampling rays, (4) the image irradiance, or exposure at a pixel, is computed according to radiometric principles. See fig. 1, 7 and corresponding text.

22. Claims 35-42, 51-96 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Wheeler ('348).

Wheeler discloses a camera system which incorporates an autofocus system of simple and inexpensive design that provides improved photospace coverage. The autofocus system utilizes both a measurement of the intensity level of ambient light and a determination of whether the ambient light is natural or artificial to set lens focus position, aperture opening, shutter time and operation of a flash unit. See fig. 1-4.

23. Claims 35-42, 51-96 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Doron.

Doron disclose a camera which powers up in a default fixed-focus mode and has a capability whereby the photographer can select an auto-focus mode. The camera includes a lens, a shutter and a motor for moving the lens and for opening the shutter. A CCD, electrically interconnected to an analog to digital signal converter, receives image data and transforms the data to analogs for transmission to the converter where a digital output signals is generated. The digital signal is electrically transmitted to a *processor* which is electrically connected to the motor. In the camera default fixed focus mode, a first control algorithm facilitates a process wherein the processor generates an electrical signal to cause the motor to move the lens directly

to a control position. To elect the ***auto-focus mode*** of camera operation, the photographer depresses a button and thereby selects a process which functions in accordance with the steps of a second control algorithm wherein the processor generates an electrical signal to cause the motor to move the lens past a focal point, and a second signal to cause the lens to backstep to the focal point. When the auto mode is selected, an icon appears on a data liquid crystal display (LCD) to indicate that auto focus mode is selected. See figures 3-7.

24. Claims 43-47 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Humphrey or Iwane.

Humphrey discloses a process and apparatus for the calibration of an optical instrument. An optical instrument--such as a lens meter or ophthalmometer--is provided with a light source, a light detector, and an optical train of assembled optical elements therebetween. A suspect optical element to be measured is placed within the optical train at a measuring interval to deflect light passing along the optical train. An occulting moving boundary locus having at least two boundaries of differing shape, and a dedicated computer may be used to measure beam deflection. The dedicated computer also makes use of stored computer constants to transform raw measurements into the desired optical properties of the suspect optical element. The optical train of the instrument has its assembled optical elements randomly placed to production tolerances; precision registration of the optical elements to traditional close optical tolerances is omitted. Calibration occurs by manipulating the instrument's beam deflection apparatus under the control of a calibration program, by providing the optical instrument being calibrated with an

umbilical cord which bypasses the central processing unit of the dedicated computer, but otherwise manipulates the entire optical instrument's beam deflection apparatus. This umbilical cord leads from a calibration computer, which substitutes central processing and contained memory as well as providing a supplemental program for the generation of customized computer constants. Customized computer constants are generated for each instrument by insertion of a series of test elements of known quantity into the samping interval of that instrument, and burned into a memory which is then placed into the dedicated computer of the instrument being calibrated. See col. 6, line 38 to col. 9, line 42.

Iwane discloses an automatic lensmeter for automatically measuring a lens characteristic of a lens to be tested, comprises: a measuring unit including an optical system for detecting a refraction characteristic of the lens; a calculation unit for calculating a lens characteristic value in accordance with information from the measurement unit; a display unit for displaying the lens characteristic value calculated by the calculation unit; an actual eccentricity calculation unit for calculating an actual eccentricity based on the lens characteristic value calculated by the calculation unit; and an optical axis position determination unit for determining whether the actual eccentricity calculated by the actual eccentricity calculation unit is within a predetermined range or not to determine whether the measurement and/or the marking are permitted. The display unit displays the determination of the optical axis position determination unit. See fig. 1-3, 12-13 and corresponding text.

25. Claims 48-50 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Aloni et al.. or Rushmeier et al.

Aloni et al. disclose an inspection method including the steps of providing a patterned object to be inspected and compared with a reference, inspecting the patterned object and providing an output of information relating to the visual characteristics of the patterned object, and providing an output indication of differences between the patterned object and the reference, the step of providing including the steps of sensing hill profiles and valley profiles in information relating to the visual characteristics of the patterned object, sensing hill profiles and valley profiles in information relating to the visual characteristics of the reference and providing a defect indication when a hill profile or a valley profile of at least a sufficient level is sensed for a given location in the patterned object and not for a corresponding location in the reference. See fig. 1-5, 14.

Rushmeier et al. disclose comparison of real and synthetic images for use in calibration. See section 1.

Conclusion

26. **Any inquiry concerning this communication or earlier communications from the examiner should be:**

directed to: Dr. Hugh Jones telephone number (703) 305-0023, Monday-Thursday 0830 to 0700 ET, ***or*** the examiner's supervisor, Kevin Teska, telephone number (703) 305-9704. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist, telephone number (703) 305-3900.

mailed to: Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to: (703) 308-9051 (for formal communications intended for entry) ***or***
(703) 308-1396 (for informal or draft communications, please label "*PROPOSED*" or "*DRAFT*").

Dr. Hugh Jones
Primary Patent Examiner
September 28, 2003